Engineering Leadership
& Innovation Institute at UCF

Industry and Academia:
Partnering to Improve the Employability of UCF CECS Students

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Agenda: April 30, 2016

- Initiative Overview
- Method, Competencies, Development Circle Concept
- Timeline
- Mid-Project Student Feedback
- End of Project Feedback – Mentors and Students
- Recap & Next Steps

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Purpose of the Initiative

Scope: CECS Capability Project v.1

June 16, 2015

Project Description:

The objective of the CECS Employability Project is to define, baseline and development key non-technical capabilities that are imperative for successful internship and full-time employment as defined by industry.

The project will be accomplished through a joint effort among organizations represented in the DAB and the CECS eli² Program.

The FL State Performance Based Funding Criteria and industry feedback drive the need to develop non-technical capabilities to support optimal employability among graduates and interns.

Project Purpose:

The purpose of the project is to ensure CECS interns, co-ops and graduates are competent to exercise creativity, innovation, collaboration and accountability in the workplace. Coupled with sound technical expertise, these skills and abilities provide a more productive workforce to industry and, thereby, support the state funding requirement that Florida universities produce a high percentage of graduates who are highly competitive in the employment market.

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Method

- Assess key competencies in targeted student group via Student Self-Assessment

- Develop key competencies via small group sessions
  - Train industry facilitators
  - Conduct voluntary small group development sessions

- Evaluate change in key competencies after intervention (small group sessions)
  - Student Self-Assessment
  - Feedback from Industry Employer Partners
  - Assess if development efforts generate ROI

Goal: Improve Employability for UCF Engineering Students

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Competencies Defined by Reviewing Best Practices and Industry Survey

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Deliver World Changing Solutions

Technically Sound
Is a good engineer/Computer scientist
- Technical Sound
- Engineering Analysis, Synthesis, and Design
- Appreciate/Values being an Engineer

Creative
Generates new ideas
- Creative
- Builder

Innovative
Converts ideas to business value
- Innovative
- Entrepreneurial
- Business/Financial Savvy

Collaborative
Works in a team as a professional
- Team Player
- Ethical & Trustworthy
- Good Communicator
- Professional
- Socially Responsible

Accountable
Brings Solutions, Meets Commitments
- Critical & Systems Thinker
- Disciplined
- Connected to and 'InSync' with the Project
- Learning/Reflective Practitioner

Attribute	Not Important	Somewhat Important	Extremely Important	Percent in Top 5
Technically Sound -- performs good technical, engineering work	0%	0%	100%	73%
Innovative -- takes ideas and develops a path to make the idea real	0%	13%	87%	67%
Team Player -- works well with others	0%	27%	73%	60%
Ethical & Trustworthy -- does the right thing all the time	0%	7%	93%	53%
Critical & Systems Thinker -- asks the tough questions and sees the issues to be addressed	0%	13%	87%	53%
Good Communicator -- writes and gives presentations well	0%	33%	67%	40%
Creative -- generates new, novel ideas to solve problems	0%	13%	87%	33%
Disciplined -- personally responsible; meets commitments; brings a strong work ethic	0%	13%	87%	27%
Business/Financially Savvy -- sees the business and strategic value of a project or idea	7%	60%	33%	20%
Connected to and "InSync" with the Project -- meets commitments w/in overall project	0%	7%	93%	13%
Learner/Reflective Practitioner -- continuously learns	0%	27%	73%	13%
Builder -- converts ideas into usable prototypes	7%	33%	60%	13%
Entrepreneurial -- takes ideas and sees how to make money from the idea	7%	73%	20%	7%
Professional -- operates in a corporate setting	7%	40%	53%	7%
Socially Responsible -- understands the global and community impacts; values diversity	13%	60%	27%	7%
Appreciates/Values Being an Engineer -- appreciates the craft of being an engineer	7%	60%	33%	0%

Development Circle Concept

Program Defined

- The Development Circle program is designed to support the professional development of high potential managers in key job families (Engineering, Project Management & Sales/Marketing).
- The program enables high potential managers to receive additional development support from Leaders and peers with a similar professional background.

Development Circle Program Participation and Identification Criteria:

Development Circle Participants

- Participants are high-performing managers.
- Participants represent key job families – Engineering, Sales & Marketing, and Project Management.
- Circle Leaders are Corporate Top Talents.

Development Circles Participation does not represent or guarantee:

- a mentoring relationship
- a promotional opportunity

Duration and Process

- Program to last one year. Meetings to take place quarterly or more often as established by participants and Leaders.
- Circle Leaders and peers to share and discuss Development Plans and advise on strategies to achieve Development Plan objectives via specific action plans.
- Participants may share as much or little of their Development Plan as they wish.

Desired outcome:

- Support the achievement of professional development as it is defined in the Development Plan authored by the participants and their managers

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Timeline: Design/Planning and Implementation

June 19
Draft to UCF Key Stakeholders

June 23
Comments back from UCF Key Stakeholders

June 23
Final Draft to DAB & Industry Key Stakeholders

July 16
DAB Design Team Kickoff
Input from Stakeholders

~July 22 (TBD)
Industry Partner Team (IPT) Launch

50 Students & 13 Mentors opted in!

Sept 18
Advertise Opportunity to ELI2 Seminar and Minor Students

Sept 18-Oct 5
Students Complete Baseline Competency Assessment

~Oct 12
Conduct Development Circle Facilitator Training

Oct 16
Launch Development Circles

Apr 8
Finalize Development Circles

Apr 22
Administer End of Year Competency Assessment
Collect Development Circle Feedback from Participants and Industry Leads

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Timeline: Evaluation

May 5

Analyze Competency Development & Feedback Data

Prepare Summary

May

Deliver Preliminary Results Summary to All Key Stakeholders

May-Jun

Deliver Performance Evaluation Forms to Intern Hiring Managers

(tentative)

Aug 15

Collect Performance Evaluation Forms

(tentative)

Aug 26

Analyze Competency Development, Circle Feedback & Intern Performance Data

Sep 2

Deliver Results Summary to All Key Stakeholders

Sep 14

Meet with Key Stakeholders to Discuss Results

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Mid-Project Student Feedback

- The development circles help to expand my network…I have also learned a lot from our mentor. In a direct way he has affected me, in that I am now starting to volunteer at observatory in the Orlando Science Center.
- Being able to ask them questions that I would otherwise not have answers to is invaluable. They are able to answer things that only someone in industry can (as opposed to professors and peers).
- I really appreciate the time my mentor is putting towards answering our many questions…It makes the idea of working in the "real world" a little less scary for me...learning what they expect from us.

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End of Project Feedback

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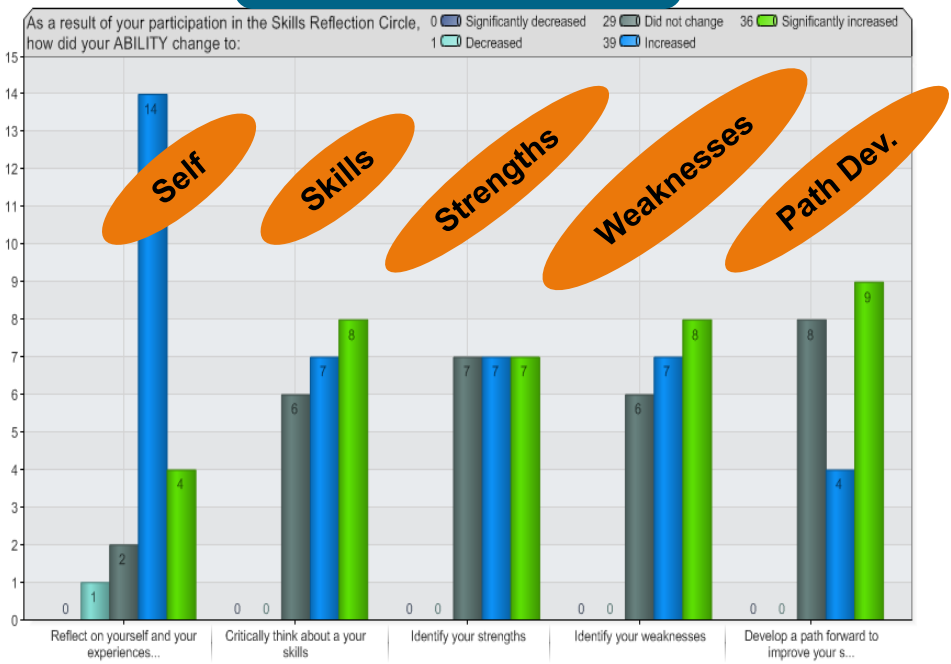
Perceived Effectiveness - Reflection

Mentors

Students



Summary

- Mentors and students perceive the Circles to help students with self-reflection on skills, strengths, and weaknesses and path development
- Almost half of the students don’t see a clear impact on path development

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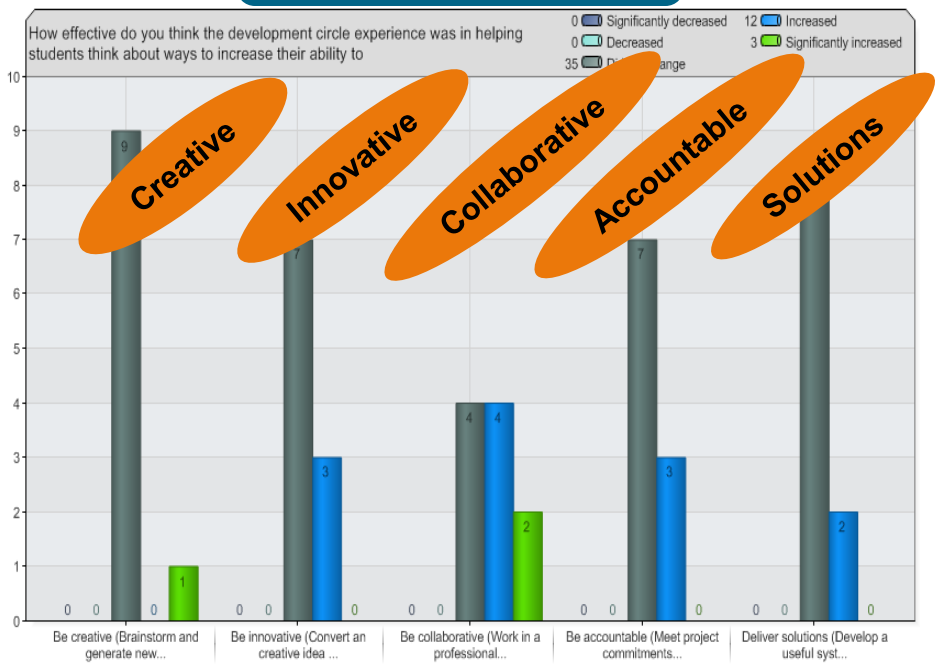
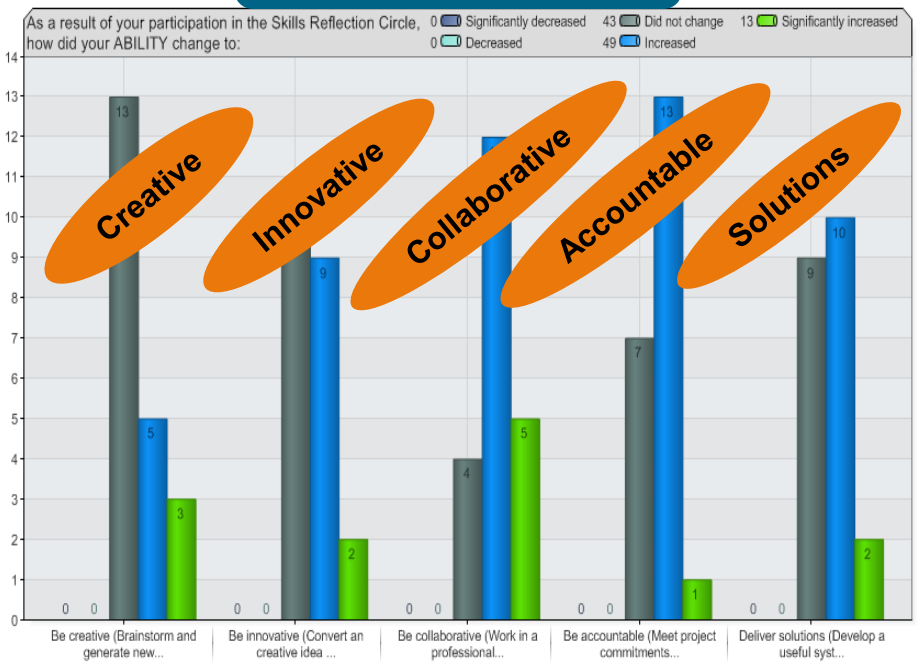
Perceived Effectiveness - Competencies

Mentors



Students



Summary

- Students were more likely than mentors to perceive that the Circles impact collaboration, accountability, and delivering solutions improvement
- Perception of Circle influence on creativity and innovation improvement was less impactful than the other competencies

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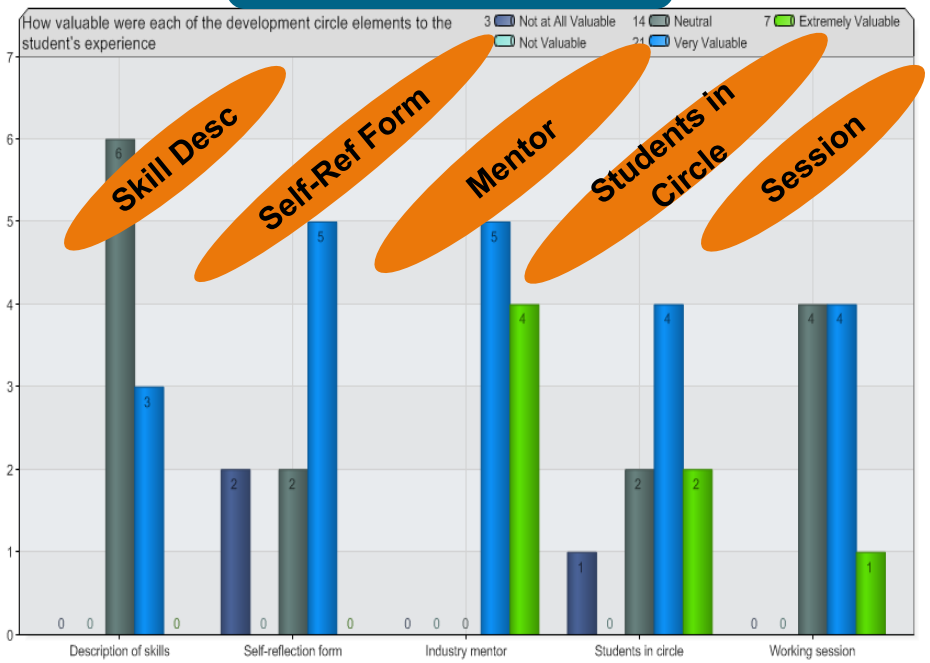
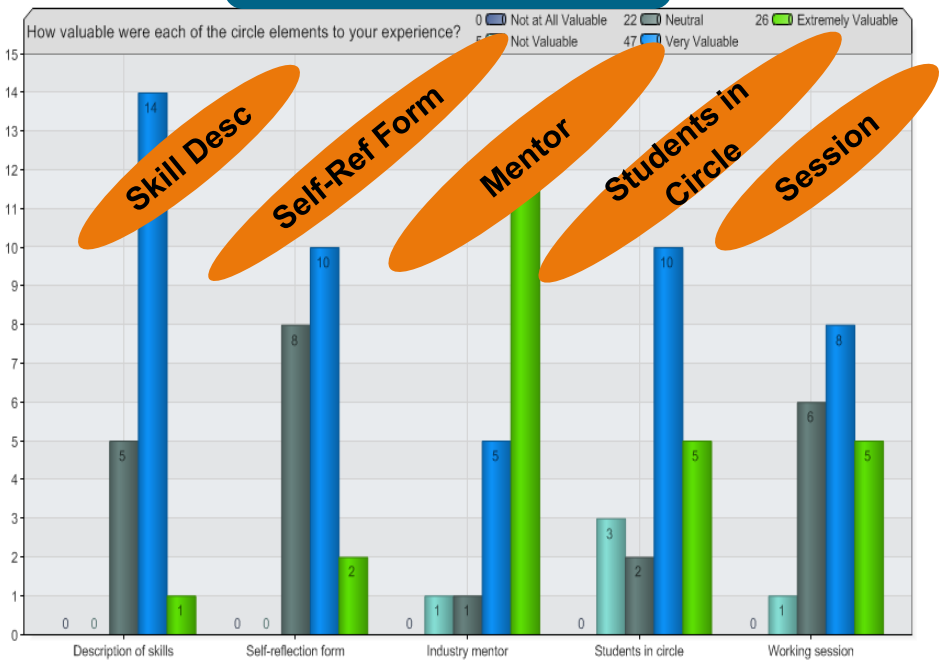
Value of Circle Elements

Mentors



Students



Summary

- The Skill Description Form seemed more meaningful to students than mentors
- Mentors and engaged students were perceived valuable in the Circle

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Impact, What is Working Well

	Mentors	Students
Impact and/or value of the experience to yourself	Very rewarding to see the energy the young students bring to the discussion and learning about our jobs. **Seeing them improve and grow is great feedback** that I'm making a positive impact on them. Some **challenges getting the group together** - we had to reschedule our Fall meeting two separate times	This experience proved to be extremely valuable. I was in contact with an **industry leader who explained first hand what the industry is looking for**. It also made me **reflect on myself and how I can improve**. Two students provided feedback on this driving their **success in internship placement** (NASA and Lockheed)
What is working well	Providing a **safe, team environment with different perspectives from each student** has allowed for diverse discussions on skill improvement areas, as well as openness to ask leadership questions. Our team took its own direction with topics that they wanted to discuss each session.	I really enjoy hearing from our mentor and the **insights he has into the industry**. Also, his initiative to reach out to us and schedule dates to meet up is encouraging as he shows he cares. I really liked the **unstructured open discussion**. It allowed us to get to topics we would not have otherwise.

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Critical Feedback, Enhancing Impact

	Mentors	Students
What is not working well	Had difficulty **finding/coordinating a room** to meet students in. The **meeting times and frequency** was challenge - trying to get everyone together at same place/time. Maybe something like Skype may work. But I'm a f-t-f person.	I think we needed **more instruction and guidance.** In general I believe the experience has gone well. I would love for it to **encompass some piece of hands on experience** but I don't know what that would look like.
What can we do to enhance the impact on all CECS students? What is the best way for all students to participate in this type of activity?	Bring in **additional mentors** - we have a large population to draw from. I would only want those students who strive to be the best/top of class. It definitely takes motivated students to participate to make it worth the time as a mentor. **Teach them how to best take advantage** of the opportunity. Don't way for the mentor to reach out. Come prepared. 1:1 time is ok. Remote sessions are ok. If being dispersed out through all CECS students then I highly suggest **making it at least a 1 credit course that they are graded on** and then having **specific criteria or deliverables** to be met and be graded.	It would be difficult for all the students to participate. I believe for it to work best these groups should remain small 4-5 students, and should be **reserved for students whom are compelled** to do this. Otherwise it is just a waste of the mentors time, which they so generously gave to us. I believe a struggle for many CECS students is getting industry related experience through internships or other potential opportunities. I imagine if students saw the **direct relation between the skills learned through these development groups and the skills needed to acquire a job** then students may be more apt to joining them.

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Mentor & Student Specific Feedback

Mentors	Observations/anecdotes about specific student actions and results	Our team focused more on leadership skills and how to be successful with **innovation/technology by understanding customer value**. Two of the members developed **uncertainties about staying in their respective programs**. The meetings and communication, I believe, **helped guide them** and keep them in or resulted in their ability to adjust.
	What can we do to enhance the impact on industry?	Continue discussion on why innovation is important but make sure engineers **understand they must have a view of business strategy to make an impact on the industry**. **Help companies to understand that the experience enriches the mentors** as well as the students.
	What can we do to enhance and make the experience easier for you and your colleagues?	At first, I would have said a more formal structure/guideline. However, I believe our **sessions evolved from students own interests/needs**. Better **communication & advanced planning** on get togethers. Just **provide a venue**, and industry will have to take care of the rest.
Students	What can we do to enhance the development circle experience for you?	More **structure, organization**. Provide the participants with an **opportunity to work with an industry mentor in the actual workplace** for one day. I think maybe trying to **pair students of certain majors to mentors who have been through the same or similar program** or hold a position in which that major will lead to may be helpful. More **engaged students** per group. **Company tours**.

Summary

Recap

- Success Story in the Making: Impactful example of effective collaboration between Academia and Industry
- Interest and input from 8 industry partners; facilitator volunteers from 4
- Significant student interest – 50 students signed up within one hour

Next Steps

- Provide feedback summary to all project stakeholders
- Consider options for assessing circle experience on job performance
- Consider implementation in 2016-2017 academic year
  - Key Topics: **Structure, Communication of Expectations, Experience with multiple mentors**

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Backup/Additional Information

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Student Self-Assessment

This questionnaires is to describe your behaviors in the competencies listed. Please answer all items on this s
frequently each statement fits you. If an item is irrelevant, or if you are unsure or do not know the answer, le

Competency	Behaviors	0	1	2
		Not at all	Once in a while	Sometimes
Creative	Identifies numerous ideas	0	1	2
	Combines ideas into new ideas	0	1	2
	Inspires breakthrough thinking	0	1	2
	Suspending judgment	0	1	2
	Be inquisitive	0	1	2
	Ask questions	0	1	2
	Open minded	0	1	2
	Selects the best ideas	0	1	2
		0	1	2
Innovative	Develops a clear problem statement	0	1	2
	Defines the intent or question trying to answer with the prototype	0	1	2
	Develops the appropriate level of prototype for the intent	0	1	2
	Builds and represents a business case for resources	0	1	2
	Able to select the best idea	0	1	2
	Persistent and determined to work through multiple prototypes to develop a final workable prototype	0	1	2
	Considers application of existing solutions to new problems	0	1	2
Collaborative	Understands strengths/weaknesses of self	0	1	2
	Understands strengths/weaknesses of others	0	1	2
	Understands teams intent	0	1	2
	Listens to others	0	1	2
	Takes other views into consideration	0	1	2
	Operates with trust	0	1	2
	Assumes positive intent of others actions	0	1	2
	Asks questions for clarification	0	1	2
	Accepts responsibilities	0	1	2
	Respects others opinion and roles	0	1	2
	Receptive to new thinking and ideas that drives the business forward	0	1	2
	Develops and utilizes the diverse talents of team members	0	1	2
	Shares learnings and experiences with others to build team competence	0	1	2
Accountable	Asks the tough questions	0	1	2

Suggestions:

- Simple rating scale (frequency of skill use)
- Choose two behaviors to focus on in each category
- Create action plan based on those behaviors

Considerations

- Strategy allows us to collect quantitative pre- and post-measure data

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Development Circle – Suggested Activities

Meeting One (Kickoff – Oct 16)

- Team Introduction Activity (Gloria will lead)
- Small Group Breakout
  - Facilitator talks about his/her own competency development
  - Participants share their baseline as they like and discuss initial ideas about how they have developed some competencies and how the competencies are relevant

Meeting Two

- Suggested Activity: Creativity/Innovation example and discussion
- Competency Development Discussion

Meeting Three

- Suggested Activity: Collaboration/Innovation example and discussion
- Competency Development Discussion

Meeting Four

- Suggested Activity: Mock Interviews – participants act as interviewees and interviewers; followed by debrief
- Competency Development Discussion

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End of Program - Feedback Forms

Change in Ability

1) As a result of your participation in the Skills Reflection Circle, how did your ABILITY change to:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Reflect on yourself and your experiences					
Critically think about a your skills					
Identify your strengths					
Identify your weaknesses					
Develop a path forward to improve your skills					

2) As a result of your participation in the Skills Reflection Circle, how did your ABILITY change to:

	Significantly decreased	Decreased	Did not change	Increased	Significantly increased
Be creative (Brainstorm and generate new and novel ideas on how to solve a problem)					
Be innovative (Convert an creative idea into a useful solution that can be sold)					
Be collaborative (Work in a professional manner on a team)					
Be accountable (Meet project commitments)					
Deliver solutions (Develop a useful system)					

Student Form: focus is on their perceived ability to develop insight and skills related to the capabilities

Facilitator Form: focus is on the perceived effectiveness of the circles to grow insight and skills in students

- Both forms include questions related to the value of different circle components and opportunities to provide qualitative feedback

Considerations

- Strategy allows us to assess perceived effectiveness and modify future implementations

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Mentor Feedback – Perceived Effectiveness (Reflection)

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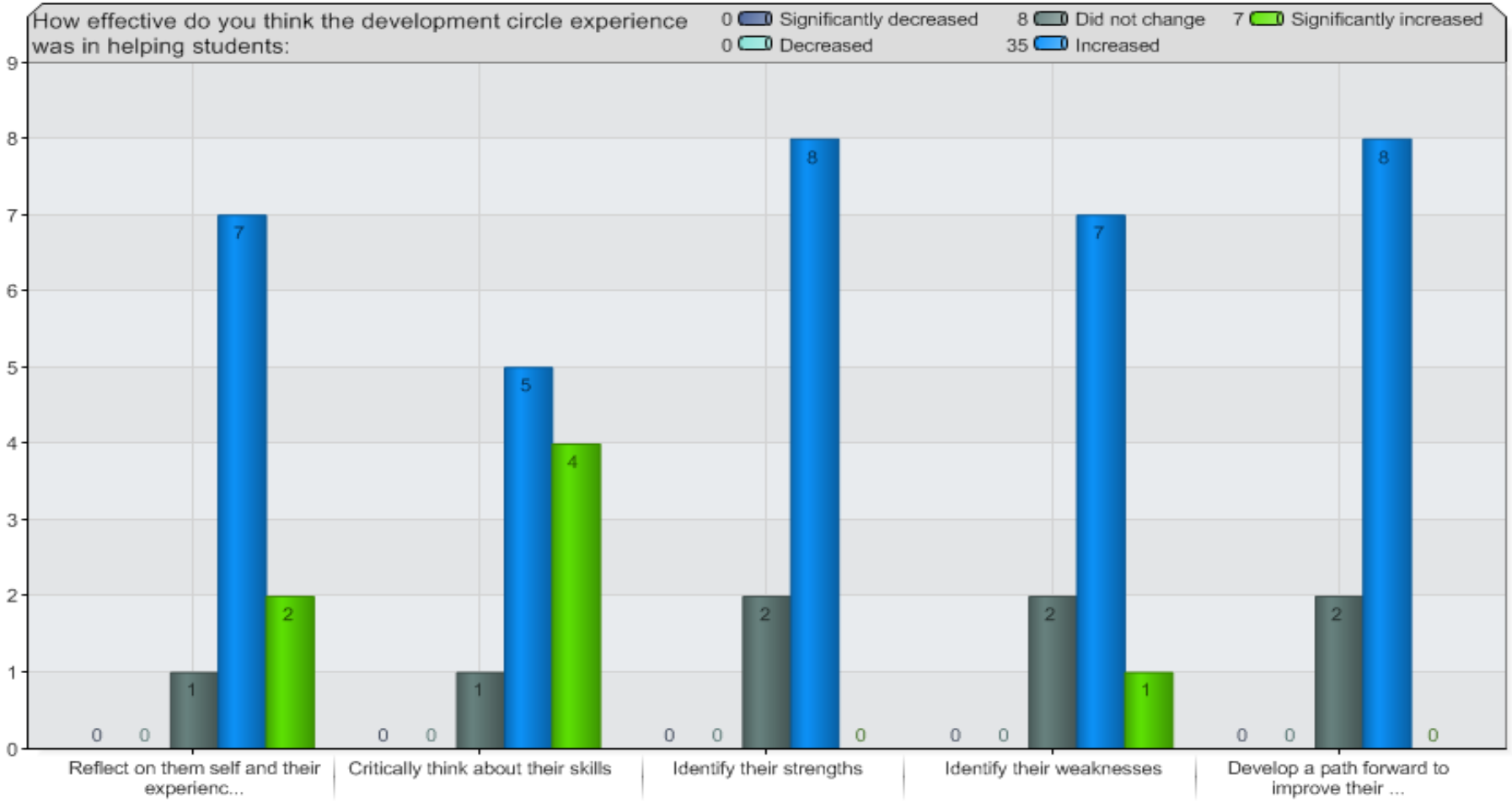

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Mentor Feedback – Perceived Effectiveness (Competencies)

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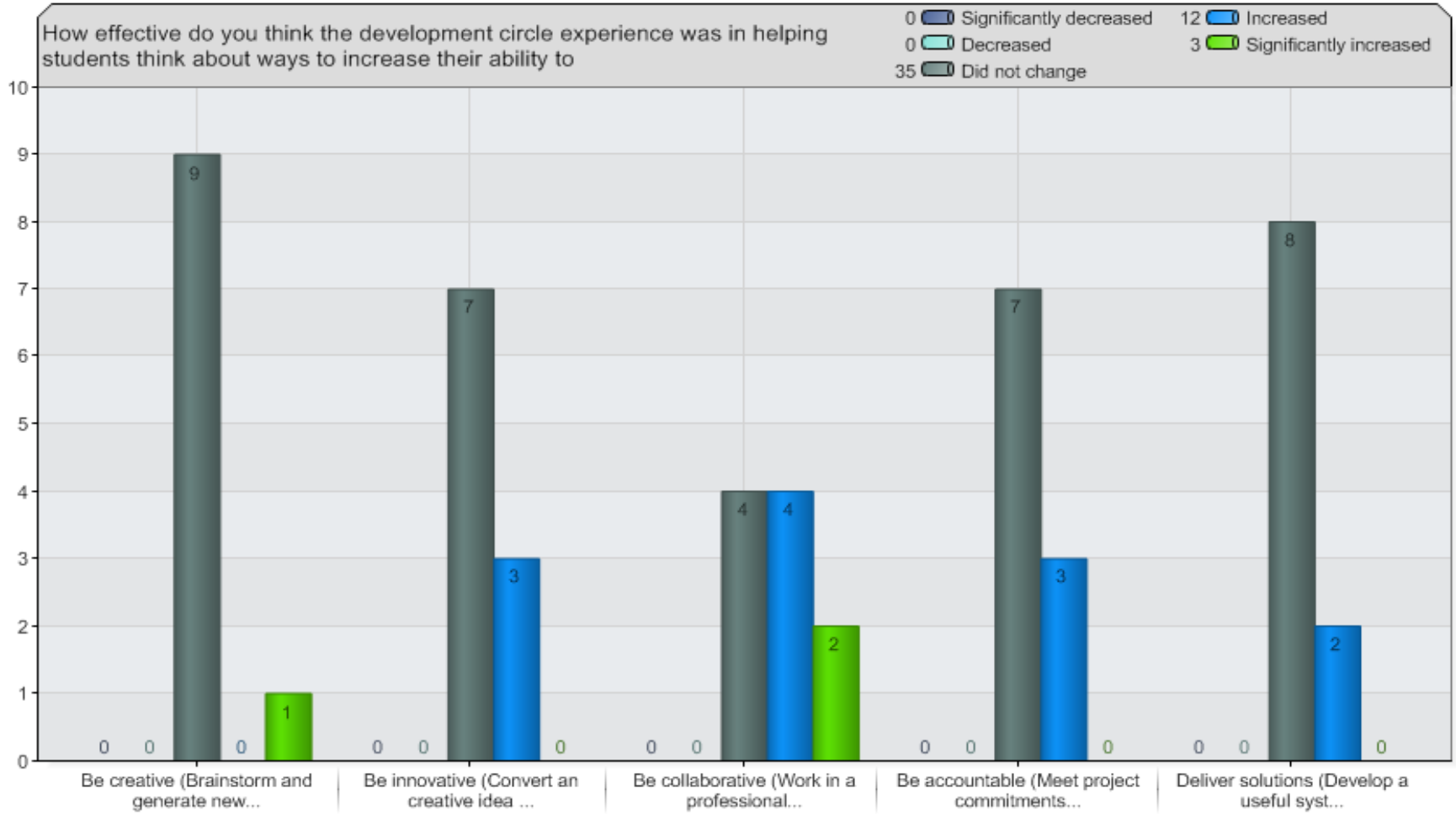

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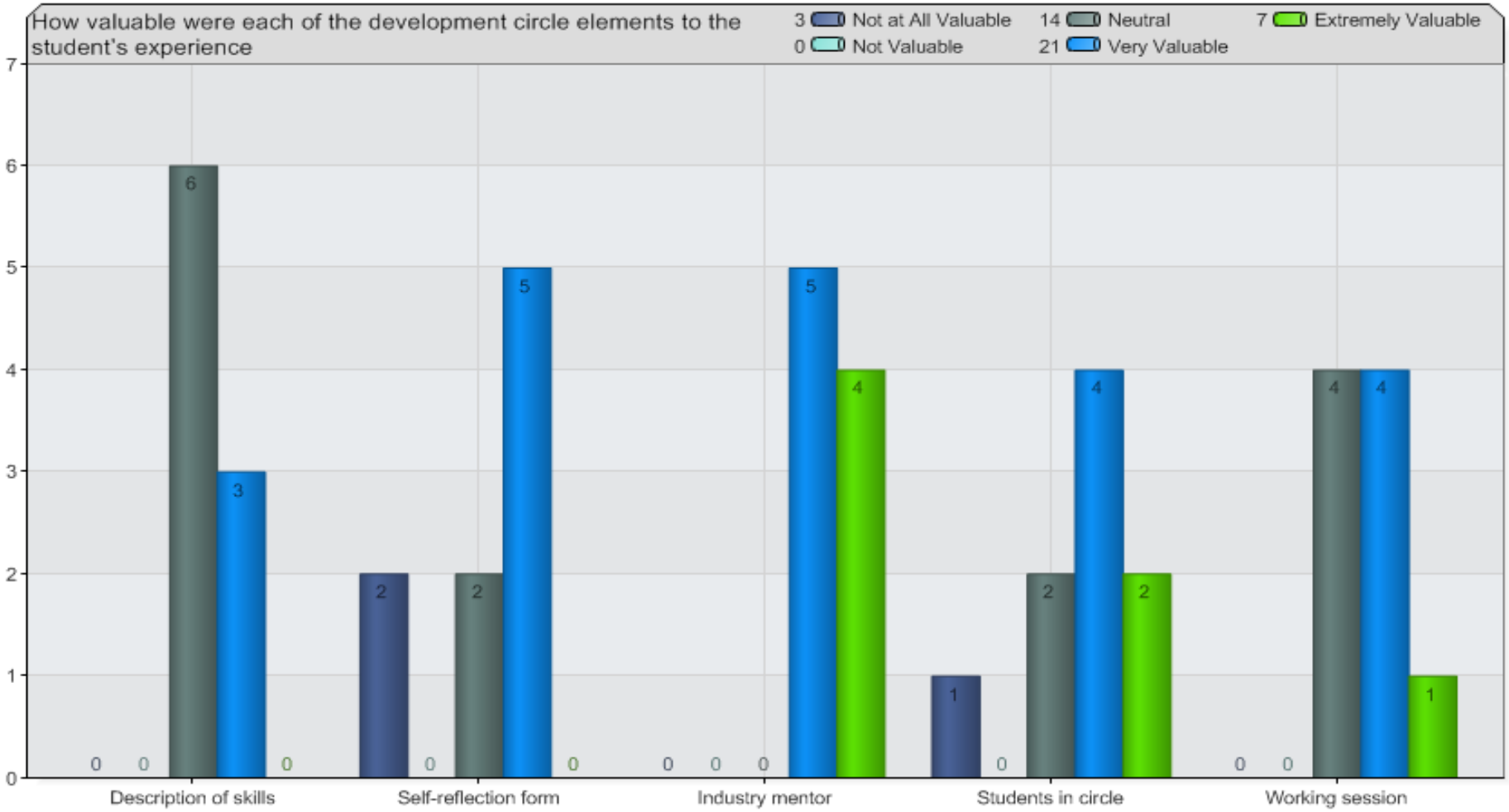
Mentor Feedback – Value of Circle Elements



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Student Feedback – Perceived Effectiveness (Reflection)

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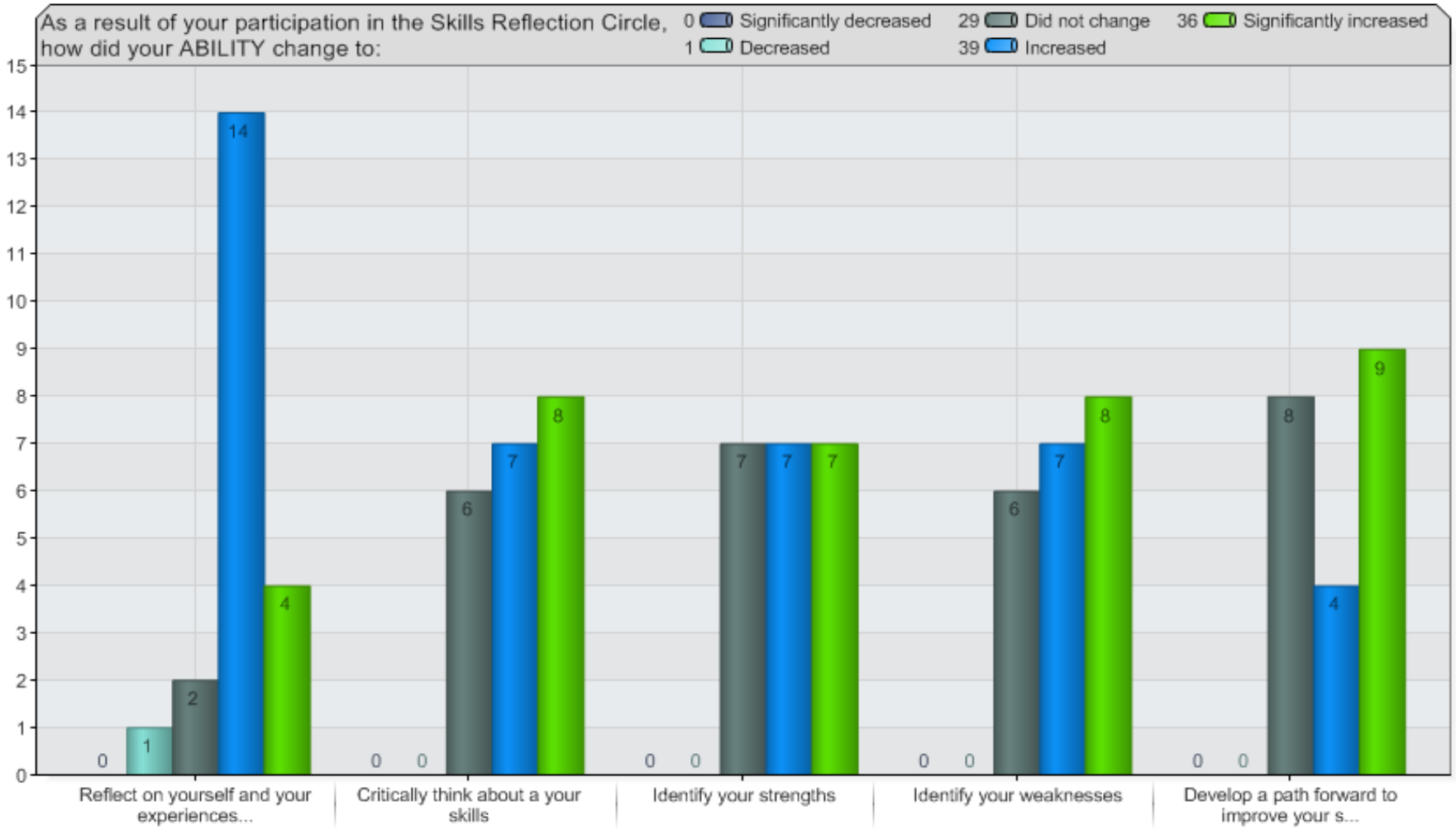

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Student Feedback – Perceived Effectiveness (Competencies)

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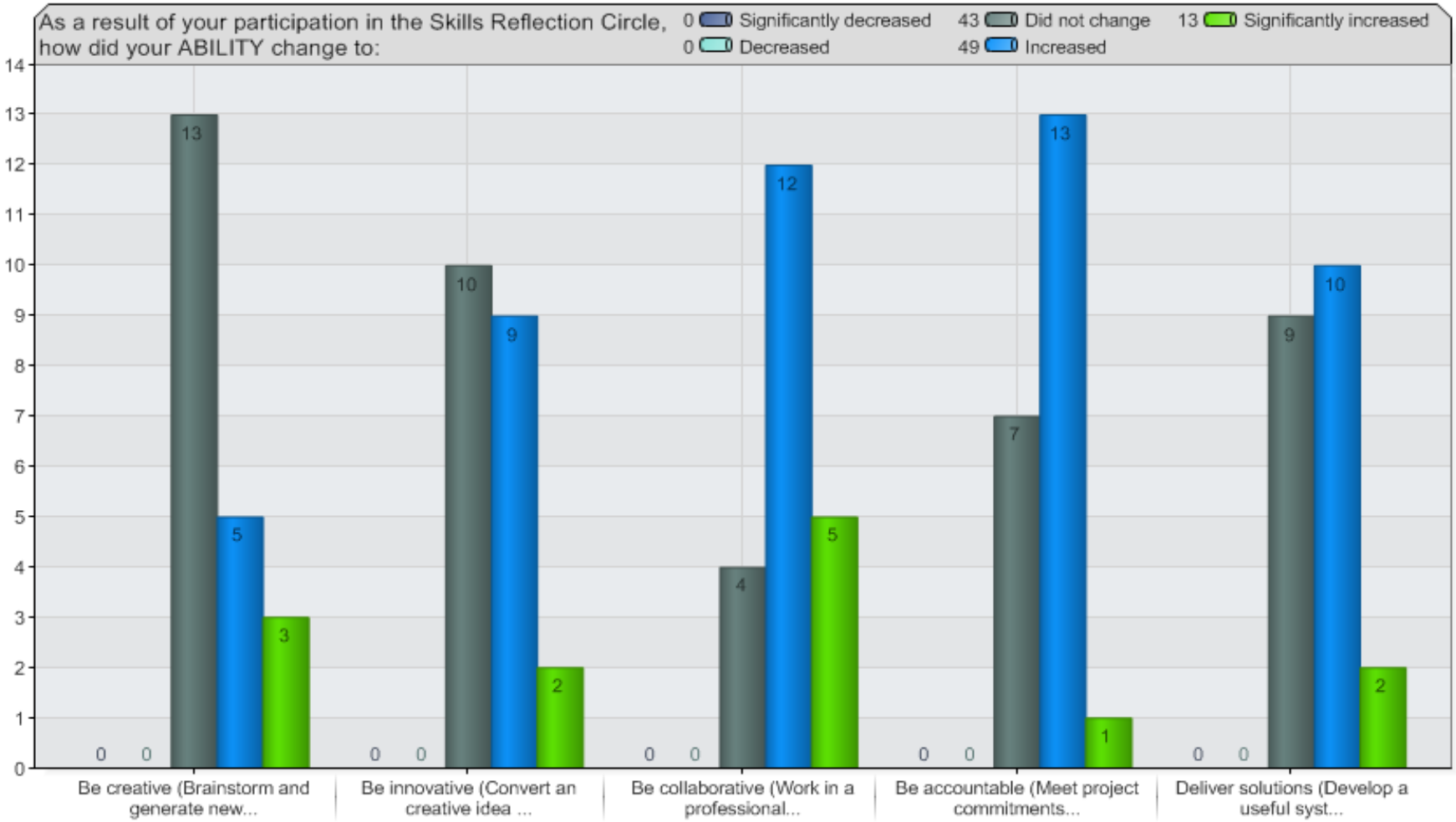

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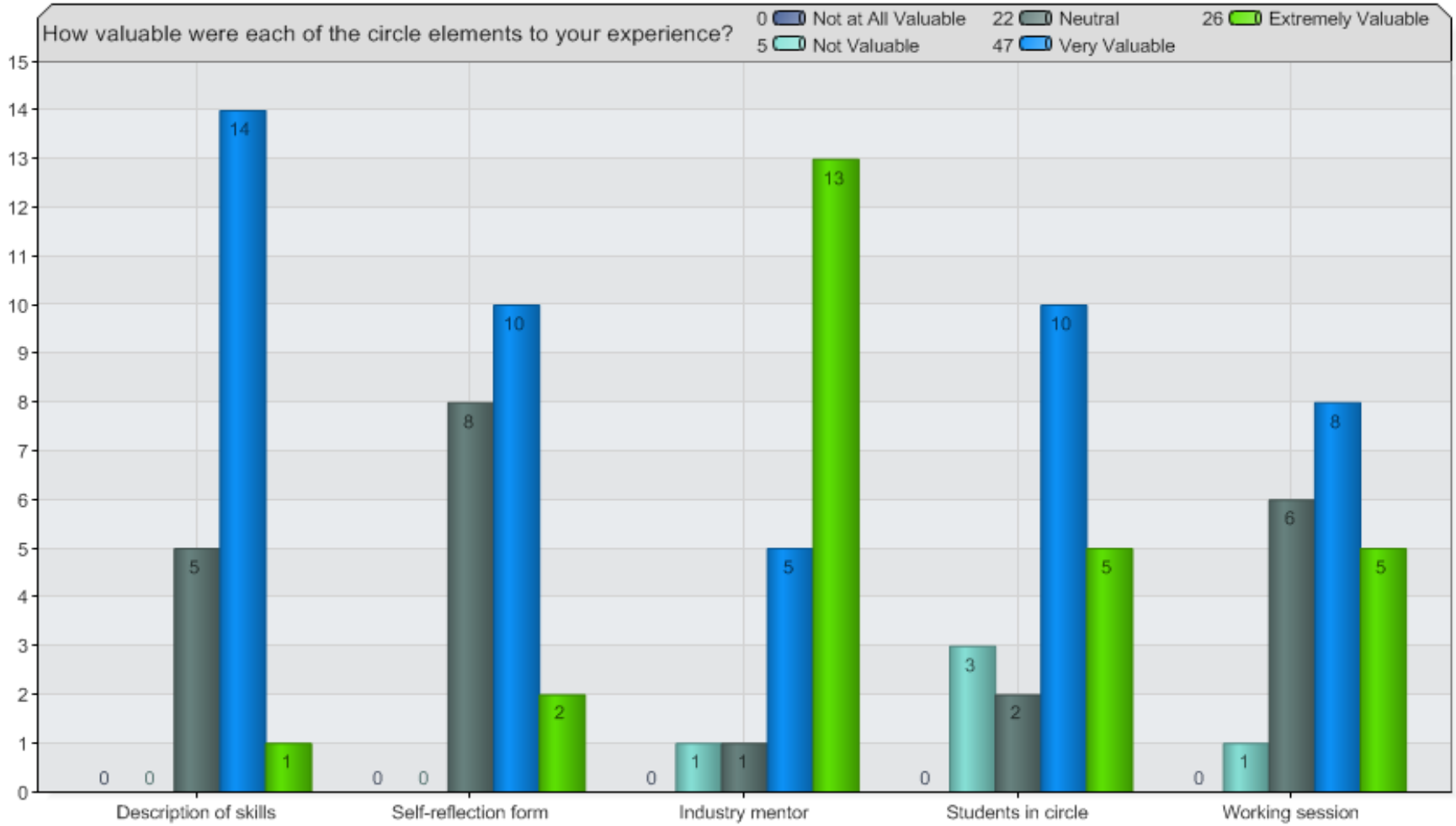
Student Feedback – Value of Circle Elements



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Development Circle Information and Tips

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Development Circle Participants Indicate Program is a Valuable Tool for Networking and Professional Development

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Survey Themes from Participants FY13-FY15 (137 participants)

- Only 35% of participants had a Development Plan prior to the program
- 93% are expanding their professional network at Siemens
- 90% find their Circle Leader valuable in supporting their development strategies
- 86% find their peers valuable in supporting their development strategies

Quotes from Participants

My participation is most certainly helping me focus on developing a plan and working towards those goals, where otherwise I likely would have not made time.

The peers are very good at providing feedback and recommendations to support my goals. They have good ideas and in some cases provided connections in the organization to support these goals.

I think it is a valuable forum with the right level of engagement.

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Development Circle Leaders would recommend participation in the program to other Corporate Top Talents

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Survey Themes from Leaders FY13-FY14

- 100% of Leaders believe the program is valuable for achieving professional development goals
- 100% of Leaders believe the program is valuable in expanding professional networks at Siemens

Quotes from Leaders

Always good to practice leadership skills.

Good opportunity to meet new talent and expand our network. Provides a unique peer and advisor feedback/perspective when discussing development plans and career ambitions.

Things are going great. Team is really engaged and it appears to be productive for them.

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Ground Rules

Development Circle Leader

- Be sensitive to the group's needs
- Listen to constructive criticism and make necessary changes
- Confront problems and difficulties
- Be supportive
- Encourage and empower all participants
- Continually evaluate progress
- **Honor confidentiality**

Development Circle Participants

- Share what you are comfortable sharing regarding development objectives (entire development plan doesn't have to be communicated)
- Listen to others and honor their experiences
- Communicate needs and feedback to Circle Leader
- Judge the message, not the messenger
- Ask questions when you have them
- Challenge yourself and Circle participants respectively
- Arrive on time and participate 100%
- Maintain the self-confidence and self-esteem of others
- Maintain constructive relationships
- **Honor confidentiality**

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Use former leaders experiences to make your circles even more successful

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Organization

- Plan the dates **months in advance**. It is difficult to coordinates many different agendas
- **Be flexible**: some participants want just to talk, some want to have something in writing. As leader you need to adapt to them
- Think about **monitoring/ quarterly calibration** with participants to ensure an appropriate level of participation
- Set **key milestones** and publish them at initial meeting

Interaction

- **Break the ice** in the 1st meeting: make it relaxing, talk about your lives, experience and clarify the expectations of the participants.
- **Everybody should participate:** bring introverted people to talk by direct questions.
- Invite the participants to talk about **concrete cases**: people should not be shy about sharing their own careers.
- **Meet also outside UCF if you like**: in nature, in a restaurant…
- **Have fun**: take it as a good opportunity for networking, learn about others about yourself as a leader
- **Set expectations** (participant`s preparation, contribution) early and indicate an intention to enforce them

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Facilitation Tips

Preparation

- ✓ **Why** is the meeting being held? What tasks are planned? What is the overall goal of the meeting?
- ✓ **Who** are the participants?
- ✓ **When** will the meeting take place? How long should it be?
- ✓ **Where** is the meeting to be held? In a conference room, cafeteria, or offsite?
- ✓ **What.** Consider the possible group dynamics. Do the participants know each other? What is the history of the participants?

Planning

- ✓ Set agenda for each meeting
- ✓ Review ground rules
- ✓ Leader needs to decide which tool or technique to use where

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Facilitation Tips
Techniques to overcome setbacks

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Potential Setbacks	Facilitation Technique
No one is participating.	Ask the group a general question, such as: “How does this apply to your job?” Wait at least 10 seconds and someone will usually respond. If not, ask another general question or address one individual. Warning: Do not answer your own questions.
One person is dominating the discussion.	Ask the group as a whole: “Does anyone see it differently?” If the speaker continues to talk say, “Just a minute, Joe, Bill has a comment.”
One person has not participated.	Ask, “John, we haven’t heard from you. How does this apply in your area?”
One participant provides long, detailed examples. These are “war stories” from past experiences.	Let the speaker talk for a while. Gently interrupt, summarize what’s been said and ask a question that relates it back to the topic such as, “Bill, are you saying that quality improvement efforts have been tried before?”
The group gets off on a tangent.	“There are lots of good ideas, but I think we’re off the topic.”
A participant’s comments are not clear.	Ask, “Ed, can you say more about that?” or “Ed, let me see if I understand…are you saying that…”
A participant asks a question and you need time to think of a response.	Ask a question in return. This will provide more information and give you time to think of a response. Ask a question such as, “Why do you ask that?” “That’s interesting, could you expand?” “What’s the impact?” “How do you think that can be accomplished?”
A participant asks a question for which you don’t know the answer.	State that you don’t know. Ask others in the room if they know (if appropriate). Ask participants if they would like you to look into it (only if you’re able). Let participant know you will get back and when.
The key to successful facilitating.	Listening.

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Icebreakers

Lucky Penny Game

Each person takes a penny or other coin out of their pocket and looks at the date. When it's their turn, they tell the year that's on their coin and recall something spectacular that happened that year.

The Pocket/Purse Game

Everyone selects one (optionally two) items from their pocket or purse that has some personal significance to them. They introduce themselves and do a show and tell for the selected item and why it is important to them.

Dream Vacation Game

Ask participants to introduce themselves and describe details of the ideal, perfect dream vacation or the latest vacation they had.

Marooned Game

You are marooned on a island. What five items would you have brought with you if you knew there was a chance that you might be stranded. This activity helps them to learn about other's values and problem solving styles and promotes teamwork.

Four Facts Game

Each person writes down four facts about themselves, one of which is a lie. Each person takes turns reading their list aloud and the rest of the team writes down the one they think is the lie. When all are done reading the lists aloud, the first person reads their list again and identifies the lie. The team sees how well they did.

Finish the Sentence Game

Write the start of a question on the board (i.e. My Favorite job was.., My Hobby is..) and go around the room with each person finishing the sentence. When the group is finished, post another question and start again.

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