Work in Progress: Examining the KEEN 3Cs Framework Using Content Analysis and Expert Review

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Abstract

The KEEN 3Cs (Curiosity, Connections, and Creating Value) framework for entrepreneurial mindset (EM) was developed by the Kern Entrepreneurial Engineering Network (KEEN) to guide curriculum development, faculty professional development, and student-related initiatives when seeking to integrate EM into engineering education. The framework has seen growing popularity and acceptance in the practitioner community, but the lack of explicit connections between the included constructs and broader existing literature has created a barrier to using the framework for research on EM. This work-in-progress paper is the first step of a larger project to identify literature connections associated with the constructs operationalized in the KEEN 3Cs framework. A content analysis of the KEEN Engineering Unleashed website was conducted to characterize the state of the 3Cs as defined by KEEN contributors. Emergent themes for each C were identified based on this content analysis resulting in a list of key terms that were subsequently used in interviews to obtain reactions from KEEN legacy leaders. The preliminary findings identified consistencies as well as variations between the key terms generated for each C and the opinions of the participating KEEN legacy leaders. These findings reinforce the necessity of building a literature-based grounding for the 3Cs framework to benefit stakeholders within and outside the KEEN community.

Introduction

Entrepreneurship has gained importance in engineering education as it provides the opportunity to develop the skills needed to address the complex problems faced by today's society [1]. It has also been recognized as an important field for growth with significant investment from the National Science Foundation through the National Center for Engineering Pathways to Innovation (Epicenter) program [1], its Innovation Corps (I-Corps) program [2], and the new Entrepreneurial Fellowship program [3]. A key component of entrepreneurship is how individuals identify opportunities, understand the needs of potential customers, generate ideas, and then develop solutions to meet user needs. This thinking style is often associated with having an entrepreneurial mindset (EM).

The Kern Entrepreneurial Engineering Network (KEEN) was developed in 2005 to encourage the development of EM in undergraduate engineering students [4], [5]. Over the course of its existence, KEEN has grown from an initial network that primarily included small private undergraduate-focused institutions to a network of 55 partner institutions, including both private and public institutions across a wide range of Carnegie Classifications [6]. In addition to its partner institutions, KEEN's Engineering Unleashed website provides a community for educators to connect and share how they have successfully integrated EM into their undergraduate classes.

KEEN developed a practitioner-centered conceptual framework, referred to as the 3Cs, to help create a common language for explaining EM to stakeholders. This practice-based framework can be considered similar to other instructional design frameworks such as the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) instructional model [7], [8] and the design thinking process (Empathize, Define, Ideate, Prototype, and Test) [9]. The 3Cs framework proposes three

elements that comprise EM: Curiosity, Connections, and Creating Value. The framework has provided a tool to explain EM to students [10], a foundation to develop engineering projects and coursework [11], and a mechanism to assess EM [12].

There is a recognized need to establish greater alignment between the 3C constructs and existing literature. This project takes a first step toward achieving this goal by developing a common understanding of each construct to assist with tasks such as journal publications, integration within curricula, institutionalization, etc. The overarching project seeks to identify literature connections to the constructs operationalized in the 3Cs in fields such as psychology, philosophy, entrepreneurship, business, and engineering. This work-in-progress paper compares how the 3Cs are represented by KEEN on their Engineering Unleashed website with the perceptions of KEEN legacy leaders to establish a baseline for further exploration. A content analysis of the site was undertaken, followed by interviews of KEEN legacy leaders to ascertain their perceptions of each C and their reactions to each C's conceptualization obtained from the content analysis. This information will be used to determine the most appropriate search terms for each C when performing a future scoping literature review and eventual Delphi study.

Literature Review

The need for entrepreneurially-minded individuals to contribute to the growing needs of society has prompted growth in engineering EM education research over the past two decades [5], [13]–[15]. Educators have designed EM interventions encouraging engineering students to practice ideation and design, work in teams, and solve real-world problems [16]–[18]. These interventions often include projects which have had positive impacts on students (e.g., higher perceived competence in their abilities and greater entrepreneurial interest) [19], [20]. Many educators agree that students should be taught EM skills, but a grounded framework and clear definition are lacking.

EM is defined differently across different fields, including engineering and business. The different definitions discuss the necessity of similar skills, such as leadership, risk management, and communication. The discrepancy comes from various stakeholders' views of EM as a whole [21], [22]. Definitions range from suggesting EM to be an ability or a skill [23], perspective or way of thinking [24], [25], or compilation of skills and attitudes [26], [27]. Kuratko, Fisher, and Audretsch's [28] study from a business context describes EM as consisting of three aspects: cognitive, behavioral, and emotional, positing that without all three working together, an individual's EM has not reached its fullest potential.

The KEEN 3Cs framework captures multiple elements of EM, including motivations, skills, and outcomes. London et al.'s [12] study developed a conceptual framework for the 3Cs that includes both mindset outcomes (attitudes) and behavioral outcomes (actions). For example, Curiosity is associated with the mindset outcome *"willingness to challenge accepted solutions"* (p. 7), and the behavioral outcome *"suspends initial judgment on new ideas"* (p. 7). Limited research [29] has expanded on the 3Cs further or sought to address how the 3Cs may be tied to other theoretical definitions of EM. Starting with this study, providing additional context for the 3Cs will allow the framework to act as a widely agreed upon, cross-disciplinary framework for EM.

Methods

This research project is a qualitative study involving content analysis [30] of the 3Cs, as represented by KEEN through its Engineering Unleashed website. The content analysis resulted ina set of themes generated for each C. Interviews with KEEN legacy leaders were conducted following this analysis to assess their opinion of each theme. KEEN legacy leaders are engineering educators at various KEEN-affiliated universities who provided feedback and input into the initial development of the 3Cs framework. The interview data were coded first deductively using the themes generated by the content analysis and later inductively to obtain new insights [31], [32]. The subsequent subsections explain in detail the content analysis and interview data analysis.

Research team positionality

The research team for this study consists of four faculty members and two doctoral students. Three of the faculty members and both doctoral students are located at KEEN partner institutions. The faculty member directly involved in the legacy interview analysis receives additional funding from the Kern Family Foundation for her work as a KEEN professional development facilitator. We acknowledge that our interaction and knowledge of KEEN and many of the legacy leaders involved in this study may have shaped our view of the definitions presented. We were able to mitigate some biases by involving a doctoral student in the coding process who had not been involved with KEEN prior to this work. We also openly express our inherent interest in developing a literature-based grounding for the KEEN 3Cs framework to help further its application as a lens for EM research and assessment studies.

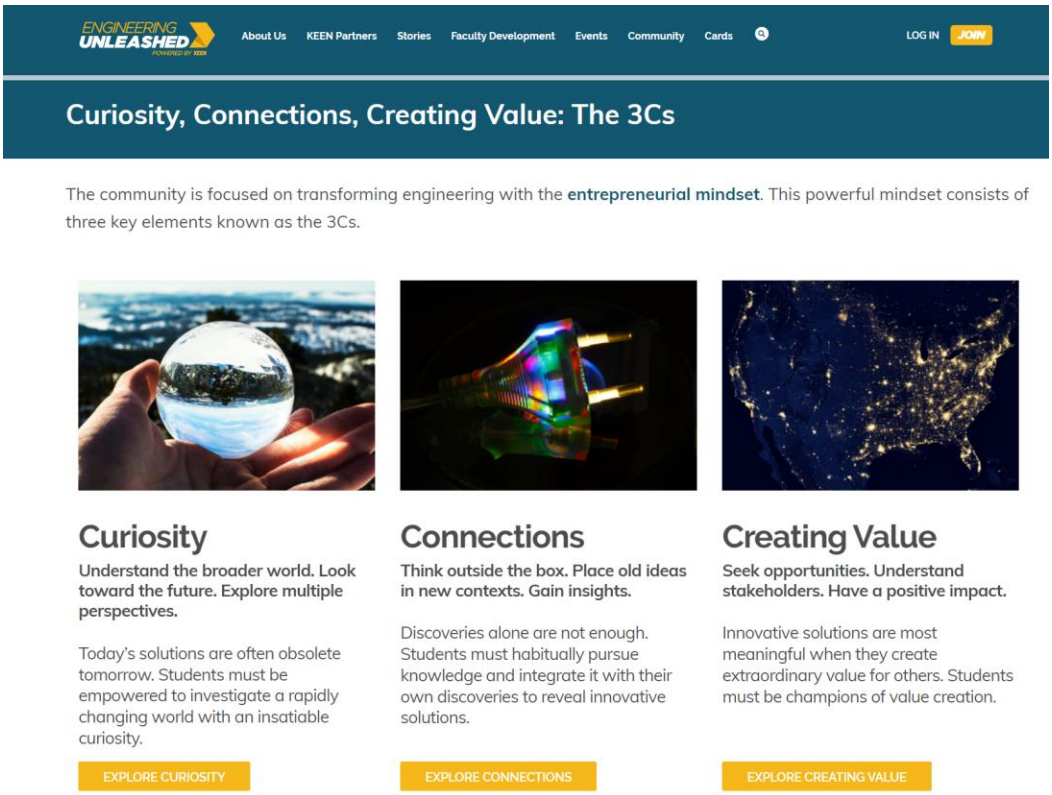

Fig. 1. Engineering Unleashed homepage with links to content pages for each C

Content Analysis

A content analysis [30] was performed on the Engineering Unleashed website [33] to understand how KEEN represents the 3Cs. The focus of this content analysis was limited to the "Explore Curiosity," "Explore Connections," and "Explore Creating Value" content web pages developed by KEEN (Figure 1). These web pages include KEEN cards, videos, papers, and other resources linked directly on the site.

The content was collected from the webpage for each C in individual Google Sheets. The information collected included titles and links for each resource accessed, descriptions/definitions for the terms presented in the content, links to sources referenced for these descriptions, examples of use cases for the term, keywords and phrases used in the descriptions, notes, and further resources listed.

Table 1. Themes Relating to the 3Cs as Described on KEEN's Website

3C	**Themes**
Curiosity	Asking questions
	Brainstorming
	Showing interest
	Uncovering information
Connections	Building relationships
	Interdisciplinary ideas
	Systems thinking
	Analysis
	Risk assessment
Creating Value	Problem solving
	Stakeholders
	Innovation
	Understanding needs

Key terms were examined by pulling direct text or quotes whenever one of the Cs was described or contextualized on the main text of the page, within a KEEN card, or said in a video. For example, "Curiosity is a fundamental motivator" [33] was copied over as a description of Curiosity that directly captured KEEN's language. The linked downloadable resources, articles, and books were also reviewed and assessed. Related content was linked for a future in-depth examination. Thematic analysis [34] was used for each C following examination and organization of website content to formulate a list of themes and descriptions that adequately describe each C, as represented on the KEEN website. These themes (Table 1) were then presented to KEEN stakeholders identified by KEEN program directors as legacy leaders.

Legacy Interviews

A list of twelve KEEN legacy leaders was provided by the Kern Family Foundation program directors to the research team as possible participants for this study. KEEN legacy leaders are described as the people who provided feedback and input into the initial development of the 3Cs framework. The research team emailed the list of legacy leaders to gauge their interest in participating in an interview. Seven legacy leaders volunteered to participate in this study. Each

of the seven legacy leaders is an engineering educator at a KEEN-affiliated institution. All participants identified themselves as male faculty at private institutions focused primarily on undergraduate students and as having used the 3Cs framework for more than nine years. Each participant received a $50 e-gift card as compensation for their participation in the research.

The data for this study was collected using a semi-structured interview [35] protocol. The questions asked during the interview are shared in the appendix. All interviews were conducted online by the fourth or fifth author using the Zoom video conferencing platform. Multiple team members were present for each interview to provide the lead interviewer with additional impromptu questions using the Zoom chat feature. The interview duration ranged from 30 to 60 minutes, with an average length of 45 minutes. Interviews started with gathering participant background information, including their association with KEEN. Interviews then transitioned to focus on the 3Cs framework. Participants were first asked to define each C as it related to the framework. Each legacy leader was then shown the themes generated from the content analysis and asked about their reaction to these themes (i.e., which themes resonated with them as relating to the 3Cs and which themes they believed may be less aligned).

The interview data were transcribed through a third-party transcription service and then individually analyzed by the first and third authors. The coding was done deductively using the themes generated in the content analysis and inductively to obtain any missing codes relevant to the 3Cs based on the participants' opinions [31], [32]. The coders discussed the initial codes to reach a common consensus on the analysis performed through triangulation [36]. A frequency distribution table was created to portray the results from the deductive coding analysis.

Results & Discussion

The following sections present the findings from the KEEN legacy leader interviews for each C of the 3Cs framework. Results of our deductive coding analysis using the themes generated in the content analysis are presented, as well as a discussion of the new themes that emerged from our inductive coding.

Curiosity

Table 2 presents the results of the deductive coding analysis performed on the interview transcripts for curiosity. The theme 'uncovering information' was observed most frequently in the interviewee definitions of curiosity and later confirmed as a component of curiosity in the interviewee responses to the themes identified in the content analysis. 'Asking questions' emerged less frequently in the interviewee definitions of curiosity, although all participants agreed to its importance when presented with the themes from the content analysis. Interestingly, most participants did not identify 'brainstorming' as part of curiosity. One participant explained their rationale for this choice stating, *"Typically brainstorming is about ideas, solutions, not understanding, not stepping back. Okay? So, uh, in that respect, brainstorming, unless you say brainstorming to find the root cause or something like that, I wouldn't consider that part in any part of curiosity*." Similar to the explanation given by the participants, a few studies propose brainstorming as a means to generate questions that will foster curiosity [37], [38]. This distinction may explain why the KEEN legacy leaders attributed the theme of asking questions to curiosity but did not resonate with the theme of brainstorming in the same manner.

Table 2. Frequency distribution of themes observed during the interviews for Curiosity

Curiosity	Interviewees Included Theme in Their Definitions	Interviewee Responded Positively to the Theme
	# of Participants	# of Participants
asking questions	4	7
brainstorming	1	2
showing interest	3	4
uncovering information	5	6

The deductive coding analysis also revealed mixed opinions among the KEEN legacy leaders about the relevance of 'showing interest' to curiosity. Equal numbers of participants agreed and disagreed that 'showing interest' was a part of curiosity. Among those who disagreed, one participant explained that they equated 'showing interest' with demonstrating politeness rather than with being curious:

> *Showing interest, I don't even know what that means about Curiosity. Showing interest is polite, right? If you're having a conversation with someone, you don't wanna act like you don't care. Uh, so that falls under politeness, not under Curiosity. Um, people are naturally curious about things that they're passionate about. So, I would like maybe a word more like a passion than showing interest.*

As evidenced in this quote, two participants preferred to replace showing interest with a new theme, demonstrating 'passion.' Some studies have suggested a relationship between passion and curiosity [39], [40]. Another word similar in meaning to passion is 'eagerness,' which is also used synonymously with curiosity within the literature [41], [42].

Additional emergent themes included 'recognizing patterns,' 'identifying opportunities', and 'disruptive thinking'. 'Recognizing patterns' was identified as a trait of curiosity by two interviewees. One participant explained, "*But the idea of Curiosity is why something exists, why there are patterns in nature, patterns in everything that [is] around us and … that is, part of the Curiosity that is higher level that's missing.*" To these participants, a curious mindset was a precursor to the ability to 'recognize patterns,' presumably leading to new opportunity identification. Additional support for the relationship between recognizing patterns and curiosity comes from research in the field of interactive games and human-centered computing [43].

Two participants also associated the theme 'identifying opportunities' and 'recognizing knowledge gaps' with curiosity. In one participant's opinion, a curious mindset is more conducive to identifying unexpected opportunities than a mindset focused on creating value, whether that value is monetary or otherwise. One participant suggests that identifying knowledge gaps was more appropriate than uncovering information. The participant explained, *"Uncovering information. I mean, we talk about knowledge gaps there, so it's more first about recognizing the, the, the kn- the knowledge gap."* Another participant also named 'identifying opportunities,' which is close to 'recognizing knowledge gaps,' as a trait associated with curiosity. Identifying opportunities is tied to creating value in the literature [44], [45]. The connection between curiosity and 'identifying opportunities' appears to be a new finding.

Finally, a single study participant identified what we have termed 'disruptive thinking' as a component of curiosity. This participant described curiosity as "*forget[ting] about just*

competing the way everyone else does [and] force[ing] myself to be curious about a new way to compete, a product that makes the others irrelevant, not just a better version of what we already have." To them, curiosity meant challenging or disrupting the status quo to find new and better solutions to problems than what currently exists. Like identifying opportunities, disruptive thinking is more often connected with creating value in the literature [46] than with curiosity.

Connections

Table 3 presents the results of the deductive coding analysis performed on the interview transcripts for connections. Five of the seven participants identified the theme 'systems thinking' under connections. Mixed reactions were obtained from the participants towards the theme 'building relationships.' According to participants, the term 'building relationships' is often misunderstood within the 3Cs framework as building social connections, as demonstrated by the following statement made by one participant, *"Building relationships, again, we're talking people, or we're talking disciplines? If disciplines, then it's green. If people, um, that not really, you know."* The participants' thoughts align with the literature as many studies use connections and relationships synonymously [47]–[49], which leads to confusion about the actual meaning of building relationships in the context of the 3Cs framework.

Table 3. Frequency distribution of themes observed during the interviews for Connections

Connections	**Interviewees Included Theme in Their Definitions**	**Interviewee Responded Positively to the Theme**
	# of Participants	**# of Participants**
building relationships	2	4
interdisciplinary ideas	1	4
systems thinking	3	5
analysis	0	0
risk assessment	0	0

'Making associations' or 'synthesizing/integrating concepts or ideas' emerged as new themes closely related to 'building relationships.' The need for these new themes within the context of connections is well-captured in the following statement by a participant, *"... But it, but we're missing the, we're missing the main point, I think, of connections here.... Um, integrating information to gain insights. That's what connections really are to me."* 'Integration of ideas' is considered a valuable trait in entrepreneurship [50]. The association is used synonymously with building relationships or connections in the social context.

Mixed reactions were obtained from the participants towards the theme of 'interdisciplinary ideas.' Participants suggested 'interdisciplinary thinking' instead of 'interdisciplinary ideas' as a better fit under connections, as represented in a statement made by a participant in this context:

> *We need diversity of thought ... if we're brainstorming, if we have a diverse group of thinkers, it definitely helps. Um, so interdisciplinary definitely helps because we're getting different schools of thought. Because I'll look at a situation much differently than a business student or a business faculty will look at a situation. So that's, that's really good. But having interdisciplinary ideas doesn't necessarily make connections.*

The extant literature contains an abundance of studies on interdisciplinary thinking in education [51], [52], including some in entrepreneurship domains [53], [54]. There is a need to explore further how 'interdisciplinary thinking' can be a theme under connections.

'Risk assessment' was not identified by any participants as a theme under connections. According to one participant, risk assessment may be connected more to creating value, which is highlighted by the following statement:

> *"Um, but again, we never, we talk about risk assessment when we're talking creating value from opportunities because the opportunity, there could be a risk there, you're not going to, and when we were just talking about design thinking, which is, "Okay, there's certain risks, uh, how much you're gonna invest in this, and are you gonna get those parts and will it fail, and blah, blah, blah." But then, but we never tend to put that under connection."*

Another participant believed the 'ramifications' of design decisions to be more related to connections than risk assessment:

> *If you're in a statics class, yeah, I'm just working on this problem. I solve what the problem is, but do you understand that if you got that wrong, there are lives involved, or do you understand that by choosing this material rather than that, it's gonna have impacts on whether it can be produced locally or not? Right? Those all require, uh, connections to material that's not in the class. And so I could see that being part of risk assessment, I guess. But I feel like, there's a few leaps that have to happen in between (laughs) for me to, to get there… but I, yeah, for us, one of the things in that connections piece that isn't on yours is kind of what are the, what are the ramifications of the way that I've solved this problem?*

Ramifications, particularly for design decisions, are considered a part of connections in the literature [55].

'Analysis' was also not broadly considered by participants to be identified as a theme under connections. A participant expressed this sentiment by saying, *"Um, analysis. So, I don't know. All these are analysis, curiosities analysis, (laughs)-... connections, and creating value. So, to me that's too broad to... really fit under connections. I don't have any problem with... It, it fits under all of 'em, right? So I have no problem with it fitting under there. I just wouldn't put that in my, my thoughts."* While no literature was found that tied risk assessment or analysis to the concept of connections, some studies suggest that risk assessment is an important aspect of entrepreneurship [56], [57].

Creating Value

Table 4 provides the results of the deductive coding analysis performed on the interview transcripts for creating value. Five of the seven participants identified the themes 'stakeholders' and 'understanding needs' as themes under creating value. In contrast, 'problem solving' was identified as a theme by only one participant in both sections of the interview. It can be observed from the following statement by a participant that problem solving without a proper context did not align with the overall perception of creating value, *"Yes, we can, we can create value by solving the right problems. Um, you know, if I'm just solving a problem for the sake of, you know, of mathematical curiosity, that, that's not really creating value perhaps."* This statement makes clear that creating value is not just about solving problems but identifying which problems

should be solved. A few literature sources indicate that solving relevant real-world problems can lead to value creation [58], [59], which aligns with the participants' shared views.

Table 4. Frequency distribution of themes observed during the interviews for Creating Value

Creating Value	**Interviewees Included Theme in Their Definitions**	**Interviewee Responded Positively to the Theme**
	# of Participants	**# of Participants**
problem solving	1	1
stakeholders	4	5
innovation	0	4
understanding needs	3	5

The theme of 'innovation' received mixed reviews from the participants, as shown in the following statement:

> *And innovation is downstream tool, and problem solving is, is, you know. I think, the stakeholders and understanding needs are the first two steps that… And then if you, if you are, if you're comfortable with innovation, you can use that to, to create the problem, probably problem solving or probably problem definition, and then problem solving comes out in the end. So, it's a linear progression."*

'Innovation' is tied to value creation in the literature [60]–[62]. Interestingly, problem solving is considered a test or check to innovation [63], representing the opposite of the viewpoint shared by participants.

A few new themes also emerged from the interviews related to creating value: 'value proposition,' 'market validation,' and 'identifying the type of value being created.' Value proposition is considered an important theme under value creation, as indicated in the following statement by a participant:

> *[Y]ou know, you know, I might be really interested in why a bee flies or how a bee flies and maneuvers and everything, but if I can't articulate where that might lead to, if we uncover those secrets, then my probability of funding goes way down. So we, we have to have, you know, a clear value proposition when we are done.*

Value creation and value proposition are best aligned when co-created [64], [65], which could be why the participant felt the need to include value proposition as part of creating value.

Four participants identified 'market validation' as a theme under creating value. Market validation is considered a means for closing the loop to check if the value has been created. A statement made by a participant in this context was:

> *And I think, I think the hard part in the classroom is exactly what I just said. Right? Where's, where's the market validation that your solution is actually a good one? Right? If, if you can solve a problem six ways, only one of them might be a good way. And without some kind of validation, I don't know how you, you know that you actually created value.*

Studies in the literature suggest the need for market validation to create value [66], [67]. They also demonstrate that amateur entrepreneurs face challenges in establishing market validations [68]. The statement could indicate a reason for such challenges and the need for this theme within creating value.

Lastly, two participants described ‘identifying the type of value being created’ as a theme under creating value. Identifying the differences in personal, societal, or economic value creation could be an important aspect of value creation:

> *I’d like to see something more about the, like the financial and the economic part ’cause value is by definition... I mean, I mean it could create value by curing hunger, right? Societal value, but if in most cases here, we’re really talking about economic value and there’s nothing in any of those statements that speaks to the economic piece of it.*

There are different perspectives on how types of values are defined in the literature. For instance, monetary, use/experience, and social value are types of value defined by Sanders and Simons [69]. In comparison, Heinonen et al. [70] note that the product/service provides value to the customer or provider and the scope of this value formation (i.e., the individual or collective level) can be an alternative type of value. There is a need to explore further how identifying the type of value being created can be a theme under creating value within the context of the 3Cs.

Conclusions

This work-in-progress paper aims to advance our understanding of the KEEN 3Cs (Curiosity, Connections, Creating Value) to inform a subsequent literature-based grounding for the 3Cs framework. A content analysis of resources available for the 3Cs framework on the Engineering Unleashed website was performed to understand how KEEN has represented each C. Subsequent interviews with KEEN legacy leaders were then used to identify a list of distinct themes associated with each C. The findings can be summarized as follows:

- Curiosity: The content analysis revealed the themes ‘asking questions,’ ‘brainstorming,’ ‘showing interest,’ and ‘uncovering information’ as a part of Curiosity. Out of these, many KEEN legacy leaders agreed upon ‘asking questions’ and ‘uncovering information’ as themes within Curiosity. However, many legacy leaders dismissed the theme ‘brainstorming.’ Opinions regarding the relevance of ‘showing interest’ were mixed. ‘Demonstrating passion,’ ‘recognizing patterns,’ ‘identifying opportunities,’ and ‘disruptive thinking’ were identified as possible new themes within this category.
- Connections: The content analysis revealed the themes ‘building relationships,’ ‘interdisciplinary ideas,’ ‘systems thinking,’ ‘analysis,’ and ‘risk assessment’ as themes under Connections. Out of these, many KEEN legacy leaders agreed that ‘systems thinking’ is a part of Connections. No KEEN legacy leaders agreed that ‘risk assessment’ or analysis fit within this category. ‘Interdisciplinary thinking,’ rather than ideas, was favored by some. ‘Making associations or synthesizing/integrating concepts and ideas’ was proposed in favor of building relationships. ‘Ramifications for the design decisions made’ was another new theme identified within this category.
- Creating Value: The content analysis revealed the themes ‘problem solving,’ ‘stakeholders,’ ‘innovation,’ and ‘understanding needs’ as themes under Creating Value. Out of these, many KEEN legacy leaders agreed that ‘stakeholders’ and ‘understanding needs’ were themes associated with Creating Value. Only a few KEEN legacy leaders identified ‘problem solving’ as a theme within this category. Opinions were also mixed regarding ‘innovation.’ ‘Value proposition,’ ‘market validation,’ and the ‘importance of the type of value being created’ also emerged as new themes relevant to this category.

The presented findings show that nuanced variations exist in the conceptualizations of the 3Cs between the KEEN legacy leaders and the content analysis of the Engineering Unleashed website. KEEN legacy leaders' perspectives highlight how individual conceptualizations may vary across faculty. The content analysis underscores that the framework constructs may differ from how practitioners perceive and use them in their educational efforts. Overall, these variations demonstrate that an in-depth examination of the 3Cs framework grounded in the literature can benefit both educational and scholarly work in the area. Our future work will include a scoping literature review and a Delphi study. Specifically, we will conduct a deeper investigation of the literature and engage with a broader sample of the greater entrepreneurship community to develop a better understanding of the themes identified for each C.

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Appendix: Interview Protocol

1. For the record, can you please state:
    a. Your name
    b. When you first became a member of KEEN?
    c. How would you describe your involvement in KEEN?

        i. Are you still engaged with KEEN? If yes, how so?
2. What do you recall (or what have you heard) about how the 3Cs came about as a framework for the entrepreneurial mindset?
    a. What, if any, role did you play in shaping the 3Cs framework?
    b. [If they played a role] What specific resources (in addition to human resources) did you refer to when helping to shape the framework?
    c. [If they have only heard about the history] From where or whom did you hear about how the 3 C's came about as a framework for the entrepreneurial mindset?
    d. Can you describe how you have or are currently using the 3Cs in your work? (Refer back to what they said regarding involvement with KEEN, e.g., research, teaching, mentorship/coaching.)
3. As you know, the 3Cs consist of curiosity, making connections, and creating value. Next, we want to explore how you personally define each C as it relates to the 3Cs Framework.
    a. Let's start with curiosity. How do you define curiosity as it relates to the 3Cs Framework?
    b. Next, how do you define connections as it relates to the 3Cs Framework?
    c. Finally, how do you define creating value as it relates to the 3Cs Framework?
4. Thank you for those definitions. Next, we want to share with you our team's analysis of KEEN resources (e.g., KEEN cards) available on the Engineering Unleashed website. We analyzed these resources with the goal of identifying themes and descriptions that the community at large has been using to define each of the 3Cs. Some of these themes are similar, while others are different from your own personal definitions. We'd like to present you with the results of this analysis, not as a test of your knowledge since there are no right or wrong answers, but to gauge your reactions to these themes – if you agree with them, if there are things you think are missing or things you think might not actually fit within the scope of one of the 3Cs, etc. We've highlighted the themes you mentioned in your definitions of the 3Cs in yellow.
    - Curiosity: asking questions, brainstorming, showing interest, and uncovering information
    - Connections: building relationships, interdisciplinary ideas, systems thinking, analysis, and risk assessment
    - Creating Value: problem solving, stakeholders, innovation, understanding needs
5. What do you think are potential opportunities for the 3Cs to continue to evolve in the future?
6. Do you have any other thoughts that you want to share as it relates to uses, definitions, and understanding of the 3Cs?